EXHIBIT 1

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT,	§	
	§	CIVIL ACTION NO. 6:20-CV-889-ADA
Plaintiff,	§	CIVIL ACTION NO. 6:20-CV-891-ADA
	§	CIVIL ACTION NO. 6:20-CV-892-ADA
v.	§	CIVIL ACTION NO. 6:20-CV-893-ADA
	§	CIVIL ACTION NO. 6:20-CV-916-ADA
HUAWEI TECHNOLOGIES CO. LTD., *et al*.	§	CIVIL ACTION NO. 6:20-CV-917-ADA
Defendants.	§	

DECLARATION OF TAL LAVIAN, PH.D IN SUPPORT OF THE DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

I, Dr. Tal Lavian, hereby declare as follows:

1. I am over the age of 18, of sound mind, and competent to testify.

2. I have personal knowledge of the matters outlined in this Declaration.

I. INTRODUCTION

3. My name is Tal Lavian, and I have been retained as a technical expert by counsel for Defendants Huawei Technologies Co., Ltd. and Huawei Technologies USA Inc. (collectively, "Huawei" or "Defendants") to address certain issues concerning U.S. Patent No. 7,406,260 ("'260 Patent") and U.S. Patent No. 7,423,962 ("'962 Patent") that have been asserted against Huawei by WSOU Investments, LLC d/b/a Brazos Licensing and Development ("WSOU" or "Plaintiff"). Unless otherwise stated, the matters contained in this Declaration are of my own personal knowledge and, if called as a witness, I could and would testify competently and truthfully with regard to the matters set forth herein.

4. My opinions are based on my years of education, research, and experience, as well as my investigation and study of relevant materials. A list of materials considered is included in Exhibit A to my declaration.

5. I may rely upon these materials, my knowledge, and experience, and/or additional materials in forming any necessary opinions. Further, I may also consider additional documents and information to rebut arguments raised by Plaintiff. I reserve any right that I may have to supplement this declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I reserve any right that I may have to consider and comment on any additional expert statements or testimony of Plaintiff's experts, if any, in this matter.

6. My analysis of the materials produced in this investigation is ongoing, and I will continue to review any new material as it is provided. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

7. I am being compensated at my usual consulting rate of $ 400 per hour for my time spent working on issues in this case. My compensation does not depend upon the outcome of this matter or the opinions I express.

II. QUALIFICATIONS

8. Based on my qualifications, education, knowledge, expertise, experience, and work background, I believe I am qualified to offer opinions relating to the technology described in the '260 and '962 Patents. A copy of my curriculum vitae, detailing my education and experience, is attached to this declaration as Exhibit B. Additionally, the following overview of my background pertains to my qualifications for providing expert testimony in this matter.

9. I have worked as a scientist, a technologist, an educator, an engineer, and an entrepreneur in the fields of network communications, telecommunications, and computer science for over 30 years.

10. I am currently an inventor of more than 100 issued patents and patent applications. A list of issued patents and patent applications is included in my curriculum vitae. A number of these patents and patent applications are related to the subject matter of the ’260 and ’962 Patents.

11. Based on my education, knowledge, expertise, technical experience, and training as outlined below, I believe I am qualified to offer technical opinions regarding the ’260 and ’962 Patents.

12. Specifically, I received a Ph.D. in Computer Science, specializing in networking and communications, from the University of California at Berkeley in 2006 and obtained a Master’s of Science (“M.Sc.”) degree in Electrical Engineering from Tel Aviv University, Israel, in 1996. In 1987, I obtained a Bachelor of Science (“B.Sc.”) in Mathematics and Computer Science, also from Tel Aviv University.

13. I was with the University of California at Berkeley for almost 20 years, where I served as Berkeley Industry Fellow, Lecturer, Skydeck member, Visiting Scientist, Ph.D. Candidate, and Nortel’s Scientist Liaison. I was employed by the University of California at Berkeley and was appointed as a lecturer and Industry Fellow in the Center of Entrepreneurship and Technology (“CET”) as part of UC Berkeley College of Engineering. I have taught several classes on wireless devices and smartphones. Some positions and projects were held concurrently, while others were held sequentially. My research has been focused on network communications, network services, communication infrastructure, and telecommunication systems.

14. From 2007 to the present, I served (and continue to serve) as a Principal Scientist at my company, TelecommNet Engineering Inc., where I develop network communication technologies and provide research and consulting in advanced technologies, mainly in computer networking and Internet technologies. Further, I am currently the CEO and CTO of Aybell (previously VisuMenu, Inc.). I founded VisuMenu, Inc. in 2010. At VisuMenu, Inc., I led the software design and development of a visual interactive voice response system for smartphones and mobile devices based on innovative use of wireless and network communications technologies. In 2016, VisuMenu, Inc. was rebranded as Aybell. At Aybell, I have facilitated the design, architectural development, and implementation of a cloud data center for connecting any smartphone user to any company and service by digitizing interactive voice systems and exposing through cloud-service application programming interfaces to other applications.

15. In 2008, I served as a Communications Consultant at Ixia, where I researched and developed advanced network communications testing technologies for ensuring wireless service quality, including developing testing for IP routing and switching devices and broadband access equipment, and providing traffic generation and emulation for the full range of protocols, such as routing, Multi-Protocol Label Switching ("MPLS"), Layer 2 and Layer 3 Virtual Private Networks ("VPN"), carrier Ethernet, broadband access, and data center bridging.

16. For eleven years, from 1996 to 2007, I worked for Bay Networks and Nortel Networks. Bay Networks was in the business of making and selling computer network hardware and software. Nortel Networks acquired Bay Networks in 1998, and I continued to work at Nortel after the acquisition. During my tenure at Bay and Nortel, I held positions including Principal Scientist, Principal Architect, Principal Engineer, Senior Software Engineer, and led the

development and research involving a number of networking technologies, including active networks, DWDM-RAM, and networking computation projects.

17. Prior to that, from 1994 to 1995, I worked as a software engineer and team leader for Aptel Communications, designing and developing wireless technologies, mobile wireless devices, and network software products.

18. From 1990 to 1993, I worked as a software engineer and team leader at Scitex Ltd., where I developed system and network communications tools (mainly in C and C++).

19. From 1987 to 1990, I worked as a software engineer for Shalev Inc., designing and developing real-time software and algorithms.

20. I have extensive experience in communications technologies, including wireless technologies, routing and switching architectures, and protocols, including MPLS Networks, Layer 2 and Layer 3 VPN, and Pseudowire technologies. Much of my work for Nortel Networks (mentioned above) involved the research and development of these technologies. For example, I wrote software for Bay Networks and Nortel Networks switches and routers, developed network technologies for the Accelar 8600 family of switches and routers, the OPTera 3500 SONET switches, the OPTera 5000 DWDM family, and the Alteon L4-7 switching product family. I wrote software for Java-based device management, including a software interface for device management and network management in the Accelar routing switch family's network management system. I have also worked on enterprise Wi-Fi solutions, wireless mobility management, and wireless infrastructure.

21. I am a member of a number of professional organizations, including the Association of Computing Machinery ("ACM") and the Institute of Electrical and Electronics Engineers ("IEEE") (senior member). I am also certified under the IEEE WCET (Wireless Communications

Engineering Technologies) 2012 Program, which was specifically designed by the IEEE Communications Society (ComSoc) to address the worldwide wireless industry's growing and ever-evolving need for qualified communications professionals.

22. A complete list of cases in which I have testified at trial, hearing, or by deposition within the preceding four years is provided in Exhibit C, which is attached to my declaration.

23. Based on my education and experience, I believe I am qualified to render the opinions set forth in this declaration.

III. LEVEL OF ORDINARY SKILL IN THE ART

24. I was asked to offer my opinion regarding the level of ordinary skill in the art with respect to the '260 and '962 Patents.

A. The '260 Patent

25. I understand that an assessment of claims of these patents should be undertaken from the perspective of a person of ordinary skill in the art ("POSITA") as of the earliest claimed priority date. I was also advised that, in order to determine the appropriate level of a person having ordinary skill in the art, the following factors may be considered: (1) the types of problems encountered by those working in the field and prior art solutions thereto; (2) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; (3) the educational level of active workers in the field; and (4) the educational level of the inventor.

26. The '260 Patent is generally directed to techniques for identifying the root cause of one or more alarms in an optical network and masking related alarms that are not identified as the root cause. *See* '260 Patent, Abstract, 2:23-61. The "DETAILED DESCRIPTION OF THE EMBODIMENT OF THE INVENTION" discloses network-wide fault isolation "while masking non-root cause alarms from the operator's view at the Element Management System (EMS). The EMS is the management system for network elements (NEs). The fault isolation system and

method according to the embodiment of this invention are focused on the alarms raised at the optical channel (OCh) layer." *See* '260 Patent, 4:14-23. The '260 Patent generally describes methods for "network wide fault isolation in an optical network" whereby the method or system can "identify the root cause alarm while masking all correlated alarms." *See* '260 Patent, Abstract. The '260 Patent summarizes certain technical problems in the field, along with certain known solutions to those problems, as of the time of the alleged inventions (just over 15 years ago). *See* '260 Patent, 1:13-2:19.

27. In order to identify the "root cause" alarm(s), the '260 Patent describes classifying the alarms into one of three categories or "levels": OCh alarm, port level alarm, or card level alarm. *See* '260 Patent, 2:38-47, Claim 1. The '260 Patent goes on to explain that "OCh alarms can mask OCh alarms, port level alarms can mask port level alarms and OCh alarms and card level alarms can mask port level alarms and OCh alarms." '260 Patent, 2:48-51. Based on these disclosures, a person of ordinary skill in the art would understand that alarms from differing levels may not correlate with one another (although, in some instances, they correlate with one another).

28. In my opinion, with respect to the '260 Patent, a POSITA would have at least a Bachelor's degree in electrical engineering, computer engineering, or a related field, with three to five (or more) years of experience in network communications, telecommunications, or networking systems, with an emphasis on network management systems (NMS), element management systems (EMS), and optical networking systems. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

B. The '962 Patent

29. The '962 patent discloses that "the invention relates to the redundancy of network elements and to load balancing in a telecommunications system … in the context of a packet-switched mobile communication system." *See* '962 Patent, Background of the Invention, 1:5-11.

"[A]n object of the invention to lower the hardware overhead to obtain redundancy." *See* '962 Patent, 1:58-60. "The invention is based on using clusters, comprising parallel network element units, called cluster nodes, for backing up a network element, such as GGSN." *See* '962 Patent, 1:65-67. The '962 Patent is generally directed to techniques for backing up a network element in a telecommunications system for redundancy, including mobile communication systems. *See* '962 Patent, Abstract and 1:6-12. The '962 Patent discloses that the goal of the invention is to lower the hardware overhead of a network element, including a GGSN (Gateway GPRS support node), for achieving redundancy and load balancing. *See* '962 Patent, 1:6-10 and 1:58-60.

30. In my opinion, with respect to the '962 Patent, a POSITA would have had a Master's degree in computer science, computer engineering, or a related field, with 3-5 years (or more) of experience in telecommunications and network communications. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

IV. SCOPE OF OPINIONS

31. I was asked to provide certain opinions regarding claim construction. I was asked to provide my opinions regarding the meaning of certain claim terms as those terms would be understood by a POSITA as of the time of the alleged invention. My opinions are based on my understanding of the disputed claim terms and proposed constructions, and the evidence relied upon by the parties, as of the time that I executed this declaration. To the extent those positions change, I reserve the right to amend or supplement my opinions.

V. APPLICABLE LEGAL STANDARDS

32. Certain legal principles that relate to my opinions were explained to me.

33. I understand that ultimately the Court will determine the matter of how specific terms are construed. This declaration intends to assist the Court in understanding how a POSITA

would have understood certain disputed claim terms in the context of the ’260 and ’962 Patents as of the time of the alleged inventions.

34. I understand that in district court litigation, patent claims are generally given the meaning that the terms would have to a POSITA in question as of the earliest claimed priority date. It is my understanding that a patentee can decide to act as his or her own lexicographer by explicitly defining terms to have a specific meaning within the bounds of the patent specification, even if that definition is different from what a POSITA would normally understand a term to mean.

35. It is my understanding that statements made to the patent office by the patentee or by the patentee’s legal representative during prosecution can serve to illuminate, and possibly even narrow, the proper scope of claim terms, and that such statements must be considered when one searches for the appropriate claim construction. I am informed that this is sometimes referred to as a disclaimer.

36. I endeavored, to the best of my ability, to take into account all of these factors as part of my analysis and in forming my ultimate opinions.

37. I understand that a claim is indefinite if, when read in light of the specification and its prosecution history, the claim fails to inform, with reasonable certainty, a POSITA about the scope of the claimed invention.

38. I understand that “means-plus-function” claiming occurs when an element in a claim is written as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof. I understand that in such a case, the claim shall be construed to cover the corresponding structure, material, or acts described in the specification that are clearly linked to the claimed function, and equivalents thereof.

39. I also understand that where the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function, the claim term is a means-plus-function term, whether or not the word "means" is used.

40. I further understand that, once it is determined that a claim term is a means-plus-function term, the court applies a two-step analysis. I understand that the first step requires identifying the function, staying true to the claim language and the limitations expressly recited by the claims. I understand that the second step is identifying the structure in the patent specification that is clearly linked to and performs the claimed function.

41. I understand that, for a computer-implemented invention claimed with a means-plus-function claim term, the structure disclosed in the specification must generally be more than simply a general-purpose computer or microprocessor in order to avoid purely functional claiming. I further understand that a computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure generally must include an algorithm. I further understand that the requirement to disclose an algorithm may be met in several ways, and is not limited to a formula of mathematical symbols. I understand that, for example, the steps, formula, or procedures to be performed by the computer might be expressed textually, or shown in a flow chart.

42. I understand that whether or not the specification adequately sets forth and clearly links structure corresponding to the claimed function necessitates consideration of that disclosure from the viewpoint of a POSITA. I understand that if the specification fails to disclose and clearly link a structure sufficient to perform the claimed function, the means-plus-function term, and the claim in which it appears, is indefinite.

VI. BACKGROUND

A. Overview of the ’260 Patent

43. The ’260 Patent generally describes methods for “network wide fault isolation in an optical network” whereby the method or system can “identify the root cause alarm while masking all correlated alarms.” *See* ’260 Patent, Abstract.

44. The ’260 Patent explains that optical networks are “subject to intermittent faults that may raise alarms in the system” and that a “single fault in the system can, however, give rise to multiple alarms detected at multiple points in the network.” *See* ’260 Patent, 1:13-16. According to the ’260 Patent, “[f]inding the root cause alarm corresponding to the fault that has triggered these alarms is important for fault isolation and repair.” *See* ’260 Patent, 1:16-18.

45. The ’260 Patent therefore, proposes “a system and method for determining a root cause alarm in an optical communication system while suppressing other correlated alarms.” *See* ’260 Patent, 2:23-26. “The method for network wide fault isolation in an optical network that identifies root cause alarms and the masking of other correlated alarms are explained with the help of the flowchart presented in FIG. 2.” *See* ’260 Patent, 6:16-19. The ’260 Patent goes on to state that, at box 201, “the method generates a list L containing all affected OCh paths (box 204).” *See* ’260 Patent, 6:20-21. “Current Path is set to be the path at the head of the list L (box 208).” *See* ’260 Patent, 6:22-23. After “the entire list has been searched,” “the procedure exits YES from box 216,” and “[a]ll the alarms that remain unmasked at this stage are root cause alarms and are displayed (box 224).” *See* ’260 Patent, 6:24-29.

46. Figure 2 from the ’260 Patent is reproduced below.

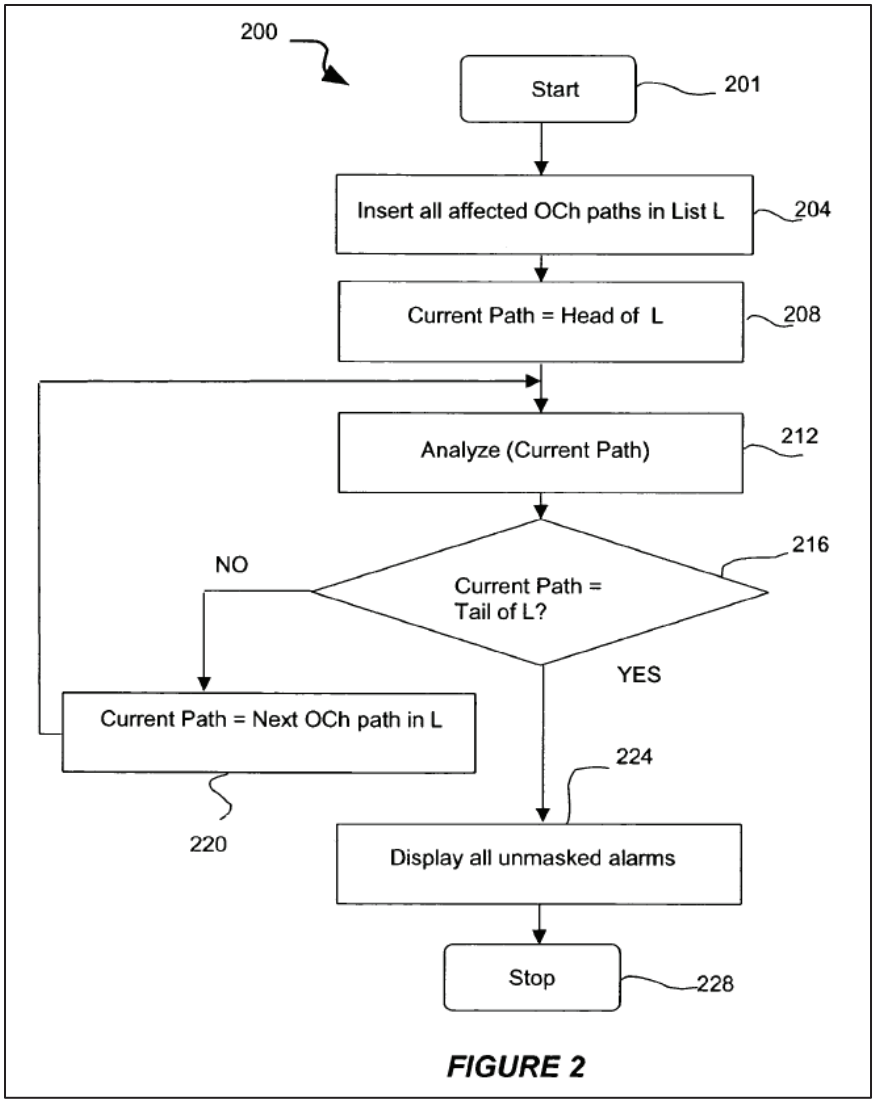


FIGURE 2

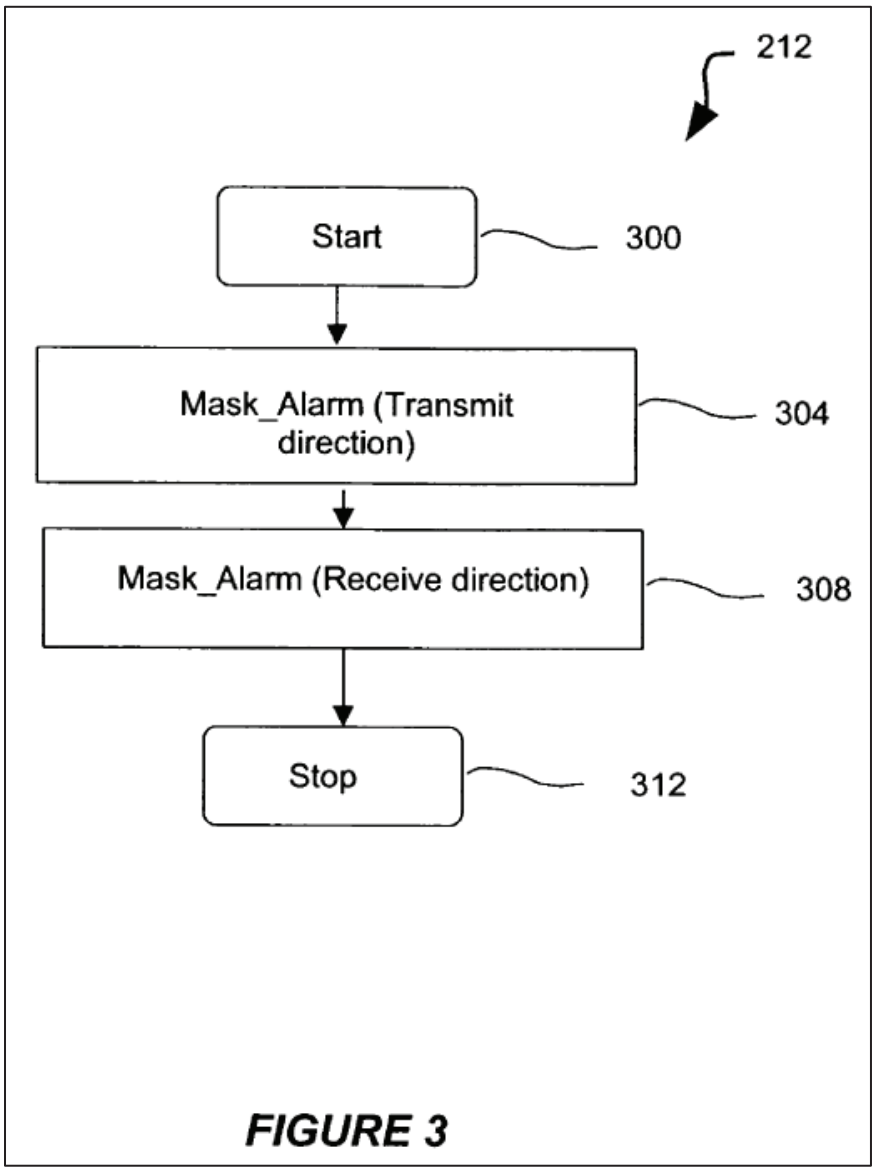
('260 Patent, Figure 2)

47. Central to the '260 Patent is the concept of analyzing an optical channel path in order to mask certain alarms and, as a result, reduce the number of alarms displayed to a user (ideally to only those that are "root cause" alarms). The step of analyzing an optical channel path is identified by reference numeral 212 in Figure 2, above.

48. According to the '260 Patent, "Procedure Analyze 212 is explained in more detail with the help of the flowchart presented in FIG. 3." '260 Patent at 6:35-36. The '260 Patent goes on to explain that the masking of alarms must first be done in the "transmit direction" and then in the "receive direction." *See* '260 Patent, 6:38-41 ("Upon start (box 300) the procedure Analyze

calls the procedure Mask_Alarm in the transmit direction first (box 304), and in the receive direction next (box 308).").

49. Figure 3 from the '260 Patent is reproduced below.



('260 Patent, Figure 3)

50. In the context of the '260 Patent, the order in which the optical channel paths are analyzed (in the "transmit direction" first and then in the "receive direction") is important because the direction of the analysis dictates which "downstream alarms" are determined to be "correlated"

and thus masked and not displayed to the user or operator of the optical network. *See* '260 Patent at 6:35-45, 6:66-7:2, claim 1.

B. Overview of the '962 Patent

51. The '962 Patent generally describes methods and apparatus for backing up a network element in telecommunications networks, including packet-switched mobile communication networks. *See* '962 Patent, Abstract and 1:6-12. I understand that the earliest possible priority date of the '962 Patent is June 28, 2002.

52. A stated goal of the invention of the '962 Patent is to lower the hardware overhead of a network element, including a GGSN (Gateway GPRS support node), for achieving redundancy and load balancing. *See* '962 Patent, 1:6-10 and 1:58-60. As shown below, the network element includes three physical cluster nodes (A, B, C) that are redundancy units of each other, and each cluster node includes multiple virtual nodes (a1, a2, b1, b2, c1, c2). *See* '962 Patent, Abstract and Fig. 2. Virtual nodes are also called logical nodes or virtual cluster nodes. *See* '962 Patent, 5:21-23.

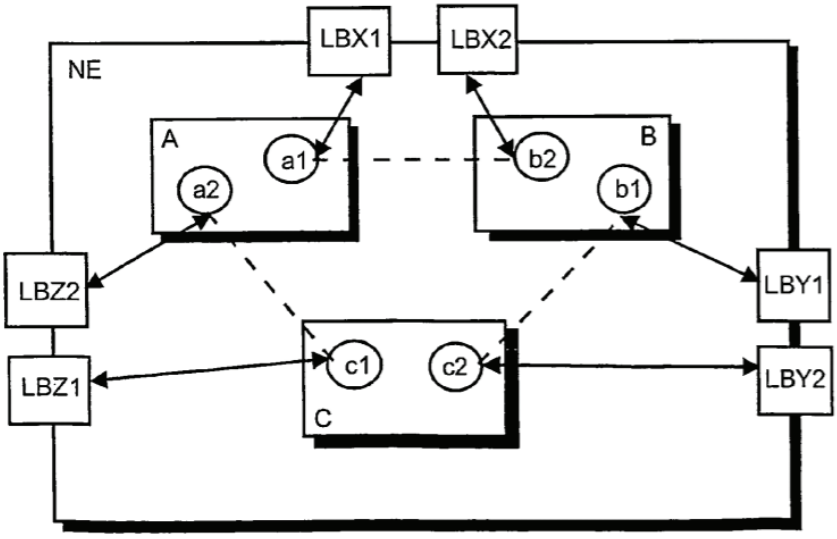


Figure 2

53. The cluster nodes are arranged in pairs, including pairs of AB, BC and CA. *See* '962 Patent, 5:13-15. In each pair, the first cluster node is a backup/redundancy unit of the second cluster node (or vice versa). *See* '962 Patent, 5:19-20. In a GGSN, cluster nodes would be physical GTP-U processing units. *See* '962 Patent, 5:9-11.

54. The cluster node A includes logical nodes a1 and a2, the cluster node B includes logical nodes b1 and b2, and the cluster node C includes logical nodes c1 and c2. *See* '962 Patent, Fig. 2. Similarly, logical nodes are arranged in pairs, including pairs a1-b2, b1-c2, and c1-a2. *See* '962 Patent, 5:26-28 and Table 1. In each pair, the first logical node is active and the second is on standby (or vice versa). *See* '962 Patent, 5:26-28. In a GGSN, logical nodes would be logical GTP-U processing units. *See* '962 Patent, 5:25-26.

55. Each logical pair is associated with a load allocation alternative. As shown below, Table 1 shows load allocation alternatives for three cluster nodes A, B, and C. *See* '962 Patent, Table 1 and 5:30-49. Each load allocation alternative (e.g., LBX1, LBX2, LBY1, LBY2, LBZ1, and LBZ2) has an external IP address that is used as the user plane address of the PDP context. *See* '962 Patent, Table 1 and 5:54-55. Accordingly, data can be transmitted to the cluster node A, B, or C using such IP address. *See* '962 Patent, 6:4-12.

TABLE 1

		Virtual node	
Processing unit pair	Load allocation alternative	Active	Standby
AB	LBX1	a1	b2
	LBX2	b2	a1
BC	LBY1	b1	c2
	LBY2	c2	b1
CA	LBZ1	c1	a2
	LBZ2	a2	c1

56. To achieve redundancy, if a cluster node A, B, or C malfunctions, the load allocation of the logical nodes of a load allocation alternative will be changed. *See* '962 Patent, 5:62-64. In particular, an active logical node serving the PDP context will be put on standby, and its corresponding standby logical node will become active. *See* '962 Patent, 5:64-66.

57. The network element includes a processor and a memory implementing software routines for performing a switchover of a load allocation alternative for achieving redundancy. 4:56-61.

VII. DISPUTED CLAIM TERMS

A. Terms for the '260 Patent

58. I understand that the parties dispute the proper construction for several terms in the '260 Patent. I have been asked to offer my opinions regarding the meaning of the following disputed claim terms, including on whether a POSITA would understand the claim terms with reasonable certainty:

(1) "masking alarms in the OCh paths in transmit direction,"

(2) "masking alarms in the OCh paths in receive direction," and

(3) "masking alarms in the downstream OCh path in the transmit direction that are correlated with each alarm in the list."

59. Each of the claim terms for which I was asked to offer my opinions is in claim 1 of the '260 Patent. Claim 1 of the '260 Patent is reproduced below, with the relevant claim terms emphasized.

> 1. A method for network wide fault isolation in an optical network having Optical Channel (OCh) paths, OCh path comprising a sequence of ports, the method comprising the steps of:
>
> identifying root cause alarms in the optical network; and
>
> displaying said root cause alarms;

> wherein the step of identifying the root cause alarms in the optical network comprises the steps of:
>
> constructing a list of all affected OCh paths in the optical network; and
>
> analyzing the OCh paths in said list;
>
> wherein the step of analyzing the OCh paths in said list, comprises the steps of:
>
> ***masking alarms in the OCh paths in transmit direction***; and
>
> ***masking alarms in the OCh paths in receive direction***;
>
> wherein the step of analyzing alarms comprises the steps of:
>
> preparing a list of the alarms present at each port on the OCh path in the transmit direction;
>
> determining if each alarm in the list is an OCh alarm or a port level alarm or a card level alarm; and
>
> ***masking alarms in the downstream OCh path in the transmit direction that are correlated with each alarm in the list***.

60. I address each of the three terms below.

i. "masking alarms in the OCh paths in transmit direction"

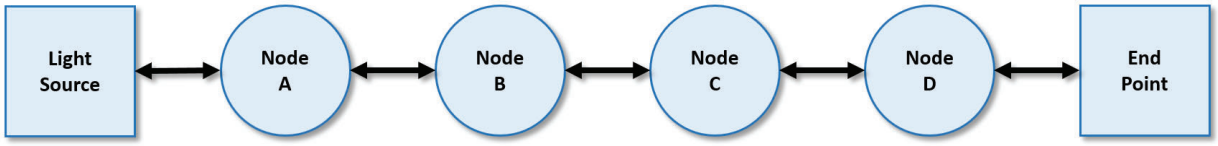
61. In my opinion, a POSITA would not understand the scope of the term "masking alarms in the OCh paths in transmit direction" with reasonable certainty. There are two reasons for this. First, there is nothing in claim 1 or in the specification or prosecution history of the '260 Patent that specifies a point of reference for determining the "transmit direction" as compared to another direction, such as the "receive direction." Second, many optical networks have very large system capacity and optical channels (OChs), so any given node can communicate with a large number of other nodes (e.g., tens, hundreds, or even thousands of optical channels), so even if one were to consider the "transmit direction" as meaning any outbound communications from a particular node, this could be any one of tens, hundreds, or thousands or directions. As a result, a

person of ordinary skill in the art would not understand the term "transmit direction," as used in claim 1 of the '260 Patent, with reasonable certainty.

62. Optical networks are made up of a collection of optical nodes. The nodes can be connected in various ways, such as point-to-point, mesh, or ring topologies. In general, the optical transport networks can be unidirectional or bidirectional. Optical networks can include multiple dimensions of complexities including different topologies, dynamic and static configurations, a variety of network protocols, configurations, setups and redundancies. Optical networks can be interconnected to other types of networks such as optical line-cards in routers and switches in complex topologies. Optical networks can be connected to multiple sources and destinations in different network topologies. For example, a topology for an optical network can have, at the same side, some nodes transmitting and other nodes receiving (so there is no specific "transmit direction" or "receive direction"). In addition, at the same optical network, some of OChs can be in one direction and other OChs can be in the opposite direction. Furthermore, most optical networks have more than two OChs to multiple directions (e.g., tens or hundreds of ports, and some large ones even thousands of OChs) so in a large number of directions, "transmit direction" or "receive direction" does not make sense at all. Downstream and upstream are terms that are related to (and appropriate for) specific communication directions of computer clients and servers, but those terms are not appropriate or meaningful in the context of the topology of optical networks.

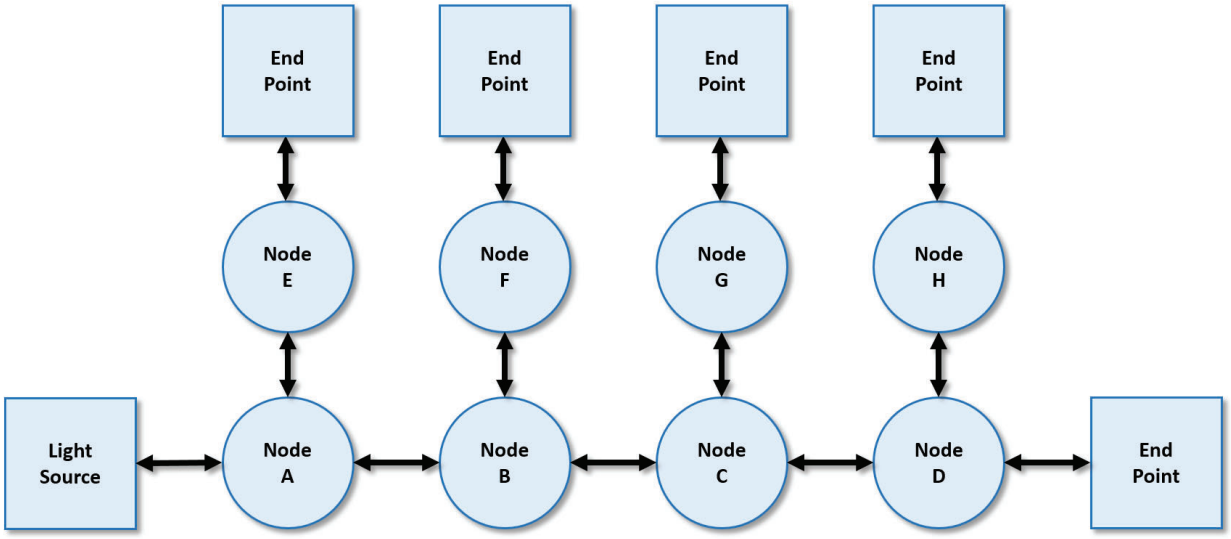
63. Imagine a simple single optical system with only one card, with only eight optical ports, and with only eight optical channels per port. This simplistic system handles 64 unique OCh paths that can go in any direction; there is no "transmit direction" and no "receive direction"; there are 64 different directions. A typical optical system includes multiple optical nodes, where each node has multiple cards, each card has multiple ports, and each port has multiple optical channels. In this typical case, there may be thousands of OCh paths, and each OCh path can be in a different direction. As a result, the concepts of "transmit direction" and "receive direction" do not even make sense when considering the thousands of different possible directions.

64. In the simplest topology for an optical network—a point-to-point topology—the network nodes are each connected to at least two other nodes. From the perspective of each individual node, however, there is no specific "transmit direction." Instead, the node can send (or "transmit") optical communications to its respective upstream or downstream node. For example, in the (simplistic one-dimension) diagram below, representing a single optical channel path using a point-to-point topology, Node B can transmit optical communications to Node A or to Node C. Those same communications, from the perspective of Nodes A and C, would be received (and not transmitted).

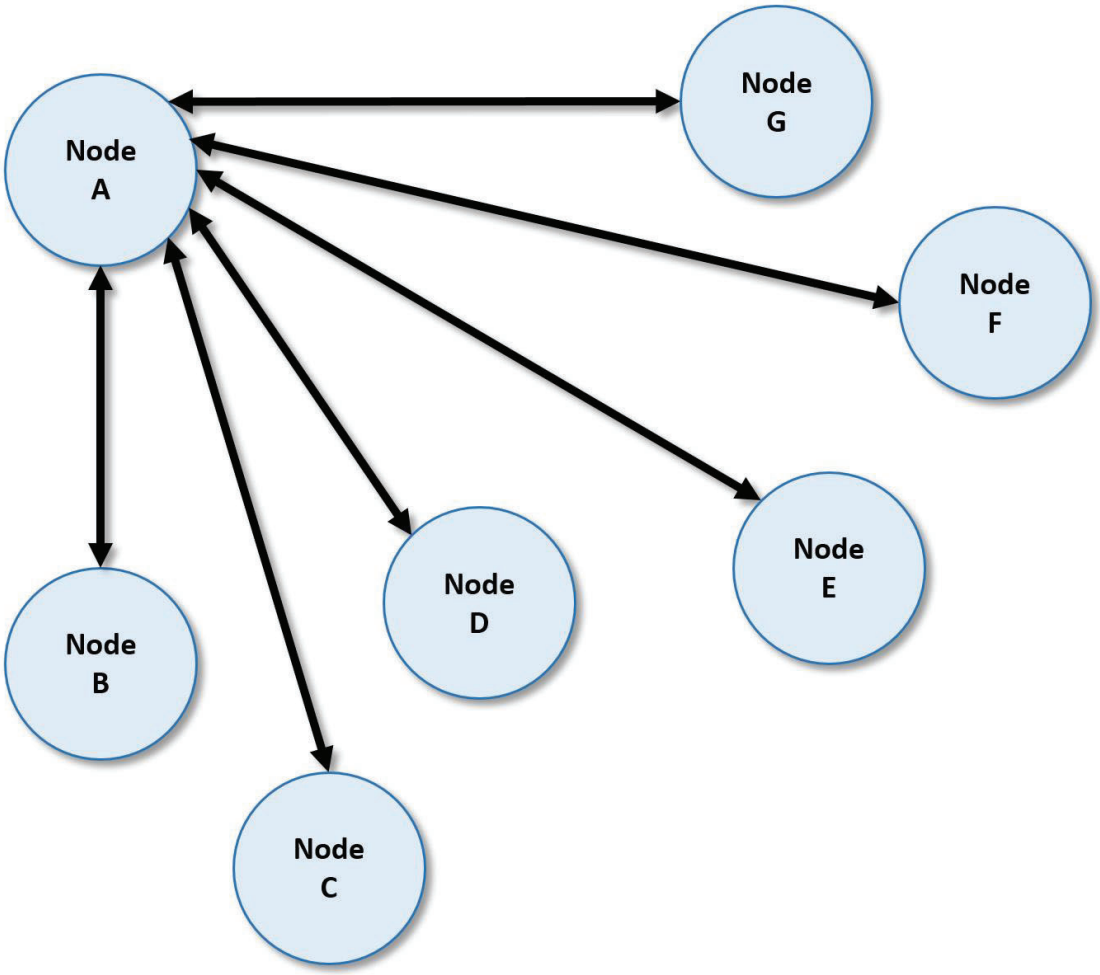


65. The lack of defined meaning for "transmit direction" is even more evident in the context of more complex optical networks, such as those found in the real world (and those that are claimed in claim 1 of the '260 Patent). Claim 1 of the '260 Patent recites "an optical network having Optical Channel (OCh) paths," each optical channel path including a sequence of ports (also referred to in the field of optical networks as "nodes"). In other words, claim 1 of the '260

Patent requires an optical network that has ***multiple*** optical channel paths. The exemplary diagram below represents an optical network with multiple optical channel paths using a point-to-point topology. In the diagram, Node B can transmit optical communications to Node A, to Node C, or to Node F. Those same communications, from the perspective of Nodes A, C, and F, would be received (and not transmitted). Notably, as can be seen in the diagram below, because optical network topologies include a variety of "branches," even if one were to attempt to determine the "transmit direction" with respect to a particular node, that direction would not be reasonably certain. For example, Node B can communicate with three other nodes (Nodes A, C, and F). There is nothing in claim 1 or the specification or prosecution history of the '260 Patent that provides a person of ordinary skill in the art a way to determine which of these three possible paths is the "transmit direction" (or if multiple of these paths are the "transmit direction"). The ambiguity is even worse when considered in the context of traversing the optical network to identify, correlate, and mask alarms, as claimed in the '260 Patent. For example, even if it is assumed that the "transmit direction" for Node B is towards Node C in the diagram below (there is nothing in the claim or the patent specification or prosecution history indicating as much), it is unclear whether the "transmit direction" continues from Node C to Node D or instead to Node G for purposes of masking alarms.



66. In more complex topologies, even if there is a reference point, there is no meaningful concept of a "transmit direction," and a person of ordinary skill in the art would be unable to understand that term with reasonable certainty. For example, in a mesh topology, a single node can communicate with multiple (or even all) other nodes in the network. The exemplary diagram below represents an optical mesh network with a relatively small number of nodes. I note that, in real-world applications, the number of nodes in a mesh optical network would commonly be much higher (*e.g.*, hundreds or thousands). As shown in the exemplary diagram below, Node A can communicate with any of Nodes B, C, D, E, F, or G. Likewise, each of the other nodes (e.g., Nodes B, C, D, E, F, and G) can communicate with each of the other nodes in the network. As a result, no communication path that can be said to be the "transmit direction" in this type of topology.



67. The same is true with respect to other optical network topologies (that a person of ordinary skill in the art would not understand the term "transmit direction," as used in claim 1 of the '260 Patent, with reasonable certainty). For example, a SONET optical network would include a large number of computers and other user equipment (e.g., telephones) that can each send and receive data (often times simultaneously) over the same connection (in this case, the physical optical cable/fiber) and to or from many other computers or other user equipment. Thus, from the perspective of any given node, there is not one specific "transmit direction" (but instead tens, hundreds, or even thousands), and from the topological perspective, there is no concept of a "transmit direction" at all. This is particularly true in real-world applications where, for example,

optical channels are aggregated such that a single channel can carry the bandwidth equivalent of a standard DS-3 channel (672 separate 64-kbit/s voice channels). That is, at any given time, there can be 672 simultaneous active voice channels. Here too, a person of ordinary skill in the art would not understand the term "transmit direction," as used in claim 1 of the '260 Patent, with reasonable certainty.

68. Thus, even with a point of reference (which, again, is not provided in the '260 Patent), a person of ordinary skill in the art would be unable to determine the meaning of "transmit direction" with reasonable certainty because there is nothing in the claims, the specification, or the prosecution history of the '260 Patent that describes how to determine *which* of the possible tens, hundreds, or even thousands of outgoing channels is the "transmit direction."

69. Because nothing in the claims, the specification, or the prosecution history of the '260 Patent provides a reference point from which to determine the "transmit direction," and because the term "transmit direction" has no meaning in the context of more complex optical network topologies (e.g., mesh networks), a POSITA would not understand with reasonable certainty the meaning of "transmit direction" in claim 1.

70. It is therefore my opinion that the phrase "masking alarms in the OCh paths in transmit direction" in claim 1 of the '260 Patent is indefinite.

ii. "masking alarms in the OCh paths in receive direction"

71. In my opinion, a POSITA would not understand the scope of the term "masking alarms in the OCh paths in receive direction" with reasonable certainty.

72. For the same reasons discussed above with respect to the "transmit direction," a POSITA would need a reference point in order to determine the "receive direction" in an optical channel path. In more complex optical networks, such as mesh networks, even with a point of reference, a person of ordinary skill in the art would be unable to determine the meaning of "receive

direction" with reasonable certainty because there is nothing in the claims, the specification, or the prosecution history of the '260 Patent that describes how to determine *which* of the possible tens, hundreds, or even thousands of incoming channels is the "receive direction."

73. Because nothing in the claims, the specification, or the prosecution history of the '260 Patent provide a reference point from which to determine the "receive direction," and because the term "receive direction" has no meaning in the context of more complex optical network topologies (e.g., mesh networks), a POSITA would not understand with reasonable certainty the meaning of "receive direction" in claim 1.

74. It is therefore my opinion that the phrase "masking alarms in the OCh paths in receive direction" in claim 1 of the '260 Patent is indefinite.

iii. "masking alarms in the downstream OCh path in the transmit direction that are correlated with each alarm in the list"

75. In my opinion, a POSITA would not understand the scope of the term "masking alarms in the downstream OCh path in the transmit direction that are correlated with each alarm in the list" with reasonable certainty.

76. For the same reasons discussed above, a POSITA would need a reference point in order to determine the "transmit direction" in an optical channel path.

77. Even with a point of reference (which, again, is not provided in the '260 Patent), a person of ordinary skill in the art would be unable to determine the meaning of "transmit direction" with reasonable certainty because there is nothing in the claims, the specification, or the prosecution history of the '260 Patent that describes how to determine *which* of the possible tens, hundreds, or even thousands of outgoing channels is the "transmit direction."

78. Because nothing in the claims, the specification, or the prosecution history of the '260 Patent provide a reference point from which to determine the "transmit direction," and

because the term "transmit direction" has no meaning in the context of more complex optical network topologies (e.g., mesh networks, ring networks, hybrid networks), a POSITA would not understand with reasonable certainty the meaning of "transmit direction" in claim 1.

79. For similar reasons, a person of ordinary skill in the art would not understand the term "downstream OCh path" with reasonable certainty. That is, nothing in the claims, the specification, or the prosecution history of the '260 Patent provides a point of reference from which the "downstream" path can be determined, and even with a point of reference (which, again, is not provided in the '260 Patent), a person of ordinary skill in the art would be unable to determine the meaning of "downstream" with reasonable certainty because there is nothing in the claims, the specification, or the prosecution history of the '260 Patent that describes how to determine *which* of the possible tens, hundreds, or even thousands of outgoing optical channel paths is "downstream."

80. It is therefore my opinion that the phrase "masking alarms in the downstream OCh path in the transmit direction that are correlated with each alarm in the list" in claim 1 of the '260 Patent is indefinite.

B. Terms for the '962 Patent

81. I understand that the parties dispute the proper construction for several terms in the '962 Patent. I have been asked to offer my opinions on the following disputed claim terms.

i. "execution means for changing, when a cluster node malfunctions, the load allocation of the logical nodes of the load allocation alternatives, the active logical nodes of which reside in the faulty cluster node, by changing the logical nodes from standby to active and the active nodes to standby" (claim 29)

82. I understand both parties agree that this term is a means-plus-function term, and that the function for this term is "changing, when a cluster node malfunctions, the load allocation of the logical nodes of the load allocation alternatives, the active logical nodes of which reside in

the faulty cluster node, by changing the logical nodes from standby to active and the active nodes to standby."

83. I understand, however, both parties dispute whether the specification of the '962 Patent discloses the corresponding structure that performs the claimed function. In my opinion, there is no corresponding structure described in the specification of the '962 Patent that performs the claimed function as both parties agreed. Therefore, claim 29 is indefinite.

84. I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. I further understand that in certain rare circumstances, simple functions, such as receiving, storing, or processing data, may be performed or accomplished by a general-purpose computer without requiring specific algorithms. However, in my opinion, the function for this term is not simple. Instead, it requires identifying a malfunction condition, and reacting with a change of the load allocation of the logical nodes of a load allocation alternative upon the malfunction condition occurs.

85. Therefore, a processor, a memory, or combination of them as generally disclosed by the specification of the '962 Patent (e.g., 4:56-61) is not sufficient enough to serve as corresponding structure for the current term. *See* '962 Patent, 4:56-61.

86. I understand that when the claim requires a computer-implemented function, except for the circumstances as discussed above, the specification should generally disclose an algorithm that accomplishes the claimed function. In my opinion, however, an algorithm that accomplishes the claimed function in the current term is not disclosed in the specification of the '962 Patent.

87. The specification fails to disclose any algorithm that performs "changing, when a cluster node malfunctions, the load allocation of the logical nodes of the load allocation alternatives . . . by changing the logical nodes from standby to active and the active nodes to

standby" as claimed. In particular, the specification is wholly silent as to how to change the logical nodes from standby to active, or from active to standby when a cluster node malfunctions.

88. For example, the description at 5:62-6:3 as asserted by WSOU is not sufficient because it just parrots the language about the function of this term in claim 29. *See* '962 Patent, 5:62-6:3 and claim 29. The description at 5:62-6:3 at most teaches that a standby logical node cannot become active if it itself is also faulty, but fails to provide any solution. *See* '962 Patent, 5:62-6:3. As a result, a POSITA would not understand how to resolve such an issue and activate the faulty logical node, which is supposed to become active from standby when another cluster node malfunctions.

89. In my opinion, a POSITA would not understand, in view of the specification (including the description at 5:62-6:3 as asserted by WSOU), how to communicate and change the status of logical nodes, especially how to communicate and further change the status of logical nodes from active to standby in a cluster node that has malfunctioned.

90. Also, in order for a processor and a memory of a network element to respond to a malfunction of a cluster node, certain communications and coordination is required at least among the processor and memory of the network element, a faulty cluster node, and its redundancy cluster node. *See* '962 Patent, claim 29, Fig. 2, and 4:56-61. However, a POSITA would not understand, in view of the specification (including the description at 5:62-6:3 as asserted by WSOU), how such communications or coordination is performed.

91. For example, to change the load allocation of the logical nodes of load allocation alternatives, according to claim 29, at least two changes are required: a change of the status of logical nodes from active to standby, and a change of the status of other logical nodes from standby to active. *See* '962 Patent, claim 29. However, in my opinion, the specification fails to provide any

algorithm illustrating the execution order of those two changes. As a result, a POSITA would not understand whether one change has to be made before another, or those two changes may be made concurrently.

92. As a further example, in view of the specification (including the description at 5:62-6:3 as asserted by WSOU), a POSITA would also not understand whether those two changes take place in the same or different ways.

93. In conclusion, because the specification of the ’962 Patent fails to disclose an algorithmic structure that performs the claimed functions in the current terms, it is my opinion that claim 29 is indefinite.

ii. “load allocation means for distributing the traffic in the apparatus on the basis of a specific load allocation plan between the cluster nodes that comprise logical nodes” (claim 32)

94. I understand both parties agree that this term is a means-plus-function term, and that the function for this term is “distributing the traffic in the apparatus on the basis of a specific load allocation plan between the cluster nodes that comprise logical nodes.”

95. I understand, however, both parties dispute whether the specification of the ’962 Patent discloses the corresponding structure that performs the claimed function. In my opinion, there is no corresponding structure described in the specification of the ’962 Patent that performs the claimed function as both parties agreed. Therefore, claim 32 is indefinite.

96. I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. I further understand that in certain rare circumstances, simple functions, such as receiving, storing, or processing data, may be performed or accomplished by a general-purpose computer without requiring specific algorithms. However, in my opinion, the function for this term is not simply receiving, storing, or processing data.

Instead, it requires distributing the traffic among and between multiple cluster nodes for redundancy and load balancing. *See* the ’962 Patent, claim 32 and 1:6-12.

97. Therefore, a processor, a memory, or combination of them as generally disclosed by the specification of the ’962 Patent (e.g., 4:56-61) is not sufficient enough to serve as corresponding structure for the current term. *See* ’962 Patent, 4:56-61.

98. I understand that when the claim requires a computer-implemented function, except for the circumstances as discussed above, the specification should generally disclose an algorithm that accomplishes the claimed function. In my opinion, however, an algorithm that accomplishes the claimed function in the current term is not disclosed in the specification of the ’962 Patent.

99. The specification fails to disclose any algorithm that performs “distributing the traffic in the apparatus on the basis of a specific load allocation plan between the cluster nodes that comprise logical nodes” as claimed. In particular, the specification is wholly silent as to how to distribute the traffic in the apparatus, which includes multiple cluster nodes, where each cluster nodes include multiple logical nodes. *See* ’962 Patent, Fig. 2, and 4:56-61

100. For example, the description at 6:13-18 as asserted by WSOU is not sufficient because it just parrots the language about the function of this term in claim 32. *See* ’962 Patent, 6:13-18 and claim 32. The only additional information, if any, provides that logical nodes can be virtual nodes, and a standby logical/virtual node is activated when the traffic is distributed to it. *See* ’962 Patent, 6:13-18. However, such information still has nothing to do with a method/algorithm/instruction as to how to distribute the traffic in the apparatus.

101. Also, in my opinion, a POSITA would not understand, in view of the specification (including the description at 6:13-18 as asserted by WSOU), how a processor and a memory of a network element can adjust or distribute the traffic between multiple cluster nodes.

102. For example, the specification is wholly silent as to the way of the traffic being distributed. As a result, a POSITA would not understand whether the traffic is distributed directly between multiple cluster nodes, or whether the amount of traffic has been determined and adjusted before it being sent to the cluster nodes.

103. As a further example, the specification fails to disclose any algorithms as to how to determine the amount of the traffic being sent to the cluster nodes in the apparatus.

104. Moreover, in my opinion, a POSITA would not understand, in view of the specification (including the description at 6:13-18 as asserted by WSOU), the definition or function of the "specific load allocation plan" as claimed and how the traffic can be distributed according to such a plan. In my opinion, the specification, at most, only provides algorithms regarding the formation of load allocation alternatives (as parties agreed). *See e.g.,* '962 Patent, 5:30-61. However, in my opinion, those algorithms still fail to disclose how to distribute the traffic between the cluster nodes.

105. In conclusion, because the specification of the '962 Patent fails to disclose an algorithmic structure that performs the claimed functions in the current terms, it is my opinion that claim 32 is indefinite.

iii. "performing means for performing a switchover of a load allocation alternative inside the network element" (claim 36)

106. I understand both parties agree that this term is a means-plus-function term, and that the function for this term is "performing a switchover of a load allocation alternative inside the network element."

107. I understand, however, both parties dispute whether the specification of the '962 Patent discloses the corresponding structure that performs the claimed function. In my opinion,

there is no corresponding structure described in the specification of the ’962 Patent that performs the claimed function as both parties agreed. Therefore, claim 36 is indefinite.

108. I understand that the structure disclosed in the specification needs to be more than simply a general-purpose computer or microprocessor. I further understand that in certain rare circumstances, simple functions, such as receiving, storing, or processing data, may be performed or accomplished by a general-purpose computer without requiring specific algorithms. However, in my opinion, the function for this term is not simply receiving, storing, or processing data. Instead, it requires performing a switchover of a load allocation alternative in a network element.

109. Therefore, a processor, a memory, or combination of them as generally disclosed by the specification of the ’962 Patent (e.g., 4:56-61) is not sufficient enough to serve as corresponding structure for the current term. *See* ’962 Patent, 4:56-61.

110. I understand that when the claim requires a computer-implemented function, except for the circumstances as discussed above, the specification should generally disclose an algorithm that accomplishes the claimed function. In my opinion, however, an algorithm that accomplishes the claimed function in the current term is not disclosed in the specification of the ’962 Patent.

111. WSOU asserts that the algorithms are described in the specification at 10:34-38. However, in my opinion, those disclosures, at most, relate to “inside the network element.” *See* ’962 Patent, 10:34-38 (“information on a primary and secondary route to the load allocation alternative is maintained inside GGSN.”). But they fail to disclose how to perform a switchover of a load allocation alternative. The disclosure regarding the location (GGSN) of the information on a primary and secondary route to the load allocation alternative cannot inform a POSITA of how a switchover of a load allocation alternative is performed.

112. Also, in my opinion, there is no other disclosure in the specification disclosing the corresponding algorithms for this term. For example, the specification discusses that a switchover of a load allocation alternative may be visible or invisible outside a network element in different scenarios. *See* '962 Patent, 6:53-57, 7:10-15, and 7:46-48. However, a POSITA would not understand, in view of the specification, how to perform a switchover of a load allocation alternative in a network element by knowing when the switchover may be visible or invisible outside the network element.

113. In conclusion, because the specification of the '962 Patent fails to disclose an algorithmic structure that performs the claimed functions in the current terms, it is my opinion that claim 36 is indefinite.

I declare under penalty of perjury that the foregoing is true and correct. Executed this

6/18/2021 | 10:25:38 AM PDT

18th day of June, 2021.

DocuSigned by:

Tal Lavian

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Tal Lavian, Ph.D